

# No end in sight to reliance on fossil fuels, report says

By H. Josef Hebert

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WASHINGTON — World energy demand will grow 50 percent over the next two decades, oil prices could rise to \$186 a barrel, and coal will remain the biggest source of electricity, despite its effect on global warming, government experts predict.

The Energy Information Administration's long-range forecast to 2030 said the world is not close to abandoning fossil fuels. They will continue to be at the core of energy production in transportation and electricity generation, according to the report released Wednesday.

The steepest increases in energy use will come in China and other developing economies, including some in the Middle East and Africa, where energy demand is expected to be 85 percent greater in 2030 than it is today, the report said.

"What jumps out is the very strong growth in the emerging economies," said Guy Caruso, the head of the agency that serves as the government statistical and forecasting arm on energy.

The outlook largely assumes no mandatory international agreements on capping greenhouse gases, especially heat-trapping carbon dioxide, which comes from burning fossil fuels. Fossil fuel use "could be altered substantially" by such deals, the report said.

Without such limits, the annual amount of carbon dioxide flowing into the atmosphere would be 51 percent greater in 2030 than it was three years ago, the study said.

Fossil fuels are expected to continue supplying much of the energy used worldwide, despite the growth of renewable energy sources, including wind and biofuels.

The report assumes oil prices ranging from a low of \$113 a barrel to as high as \$186 a barrel by 2030. A barrel of oil was trading above \$133 on Wednesday. Adjusted for inflation, the \$113 price would be about \$70 in 2006 dollars, the report said.

"We're not going back to the historically low prices we saw in the '80s and '90s," Caruso said, while acknowledging the uncertainty of trying to peg prices so far into the future.

Global demand for liquid fuels — mostly oil — will grow to 113 million barrels a day by 2030, nearly one-third more than is consumed today, the report said. But high prices could have an impact, shaving demand by as much as 13 million barrels a day.

China and other developing countries that are powering the anticipated rise in energy demand should see sustained economic growth over the next two decades.

Coal use is expected to jump by nearly two-thirds by 2030. China alone will account for nearly three-fourths of that increase, the report said.

Despite coal's effect on climate change, Caruso said, "it's the fuel of choice for electricity production in the emerging economies, especially China."

Petroleum products such as oil sands, biofuels and ethanol should grow to nearly 10 percent of total liquid fuels. Yet with the demand for conventional crude oil, the Organization of Petroleum Exporting Countries is expected to increase production at a pace that will keep its 40 percent market share, the report predicts. It said OPEC would accept a decline in market share only if prices are high.

The report also projects that electricity production from nuclear power plants will grow by one-third, with the addition of 124 new nuclear power plants by 2030. As many as 45 could be in China, 18 in Russia, 17 in India and 15 in the United States.

Natural gas "will replace oil wherever possible," especially in industrial uses, causing demand to grow for the fuel. Demand will grow for liquefied natural gas, with production concentrated in the Middle East and Africa, the report said.

The report predicted a 2.1 percent annual growth in renewable energy for electricity generation, mostly because of increases in the use of hydroelectric power in developing countries.